relative atomic mass Ar(X)

AI Mode All Images Videos Shopping Forums News More Tools

AI Overview

The relative atomic mass, denoted as $A_r(\mathrm{X})$ for an element $\mathrm{X}$, is **the weighted average mass of an atom of that element compared to one-twelfth of the mass of a carbon-12 atom**. Because it is a ratio, $A_r$ has no units.

## What $A_r(\mathrm{X})$ Means

- **Weighted average:** It counts all natural isotopes of an element.
- **Abundance matters:** Rarer isotopes count less; common ones count more.
- **Carbon-12 standard:** One atom of carbon-12 equals exactly 12 units.
- **No units:** Units cancel out in the ratio.

## How to Calculate $A_r(\mathrm{X})$

To find the relative atomic mass from isotope data, use this formula:

$$A_r(\mathrm{X}) = \frac{\sum(\text{isotopic mass} \times \text{percentage abundance})}{\sum \text{percentage abundance (usually } 100)}$$

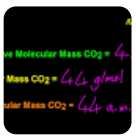
- Multiply each isotope mass by its percentage or fractional abundance.
- Add those values together.
- Divide by the total abundance (100 if using percentages).

If you have a **specific element** or a **math problem involving isotopes** you need help solving, share the numbers and I can walk you through the calculation step-by-step.

6 sites

Relative mass - Colourful Solutions - IB Chemistry

Relative atomic mass is used to define the relative mass of one atom of a metallic element, or non-metallic element, which may be ...



Colourful Solutions - IB Chemistry

Relative Mass Formula - A Level Chemistry Revision Notes

Ask anything

Chemsheets

Wikipedia
https://en.wikipedia.org › wiki › Relative_atomic_mass

## Relative atomic mass

**Relative atomic mass** (symbol: A r; is a dimensionless physical quantity defined as the ratio of the average mass of atoms of a chemical element in a given ...

Missing: ~~X)~~ | Show results with: X)

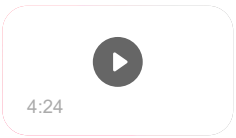
BBC
https://www.bbc.co.uk › ... › Key concepts in chemistry

## Calculating relative atomic mass - Higher - Atomic structure

**Learn about and revise atomic structure** with this BBC Bitesize GCSE Combined Science (Edexcel) study guide.

YouTube · FuseSchool - Global Education
181.3K+ views · 11 years ago

## Relative Atomic Mass | Properties of Matter | Chemistry ...




**Learn the basics about Relative Atomic Mass**. It is a tricky concept that's actually quite simple to understand and here, you will know how ...

6 key moments in this video

Missing: ~~X)~~ | Show results with: X)

Save My Exams
https://www.savemyexams.com › cie › 3-1-4-ar-and-mr

## Relative molecular mass - IGCSE Chemistry Revision Notes

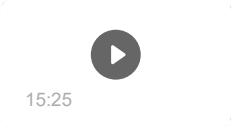
Apr 10, 2026 — **Relative atomic mass is shown on the atomic symbol**. It is always larger than the atomic number (except for hydrogen, where they are the same). Read more

alevelchemistry.co.uk
https://alevelchemistry.co.uk › Notes

## Relative Atomic Mass, Relative Molecular ... - A Level Chemistry

**Every atom has a relative atomic mass**. In other words, it is a mass of an atom, relative to the mass of C-12. Since it is a ratio, it is unitless.

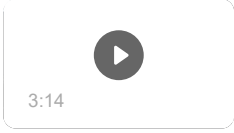
### Videos




Relative Atomic Mass Calculations

YouTube · Bewickchemistry
Jan 21, 2023

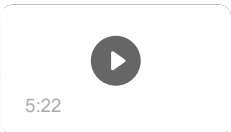
To calculate **relative atomic mass**, multiply each isotope's **mass** by its abundance, sum these values, and divide by the total abundance.




S1.2.2 Calculating relative atomic mass

YouTube · Mike Sugiyama Jones (MSJ Chem)
Jun 20, 2022

Multiply the **mass** number of each isotope by its **relative** abundance, add them together, and divide by 100. Lead's is 207.20.




Calculate the relative atomic mass (Ar) of metal X|GCSE ...

YouTube · Chemistry by Saad Anwar
Mar 9, 2026

View all

### Questions and answers

Quora

Question

How do you calculate **relative atomic mass** in chemistry?

Answer · 3 votes

Here I am a chemistry teacher of 35 years, and…
More

Quora

Question

How do you calculate **relative atomic mass** with a giving ratio?

Answer · 0 votes

Relative atomic mass (Ar) for an element with isotop…
More

Facebook

Question

What is the **relative atomic mass** of element x?

Answer · 2 votes

Solution: the total ratio is 4
First element x is contain …
More

Feedback

Colourful Solutions - IB Chemistry
https://ibchem.com › s1.42.php

## The mole > The relative mass scale

Relative atomic mass is **used to define the relative mass of one atom of a metallic element**, or non-metallic element, which may be considered to consist of ... Read more

TutorChase
https://www.tutorchase.com › aqa-gcse › chemistry › 1-...

## 1.3.3 Calculating Relative Atomic Mass

To calculate the relative atomic mass of element X, we use the formula: **Ar = (isotopic mass × percentage abundance) / 100**.

ScienceDirect.com
https://www.sciencedirect.com › topics › engineering › r...

## Relative Atomic Mass - an overview

The **relative atomic mass** of an element is defined as the weight in grams of the number of atoms of the element contained in 12.00 g of carbon-12.

## People also search for

| | |
|---|---|
| Relative atomic mass **formula** | Relative atomic mass **of oxygen** |
| Relative atomic mass ar x **meaning** | Relative atomic mass **of c** |
| **Unit of** relative atomic mass | **How to calculate** relative atomic mass **of isotopes** |
| Relative **molecular** mass | Relative atomic mass **of hydrogen** |



Results are personalized - Try without personalization

Canada **H2V, Montreal, QC** - Based on your past activity - Update location

Help Send feedback Privacy Terms